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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,562	03/05/2007	Yoon-Seob Eom	P-0775	4135
34610 7590 03/01/2010 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200				
EXAMINER				
BAUER, CASSEY D				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/576,562

Applicant(s)

EOM ET AL.

Examiner

Cassey Bauer

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/200)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

The Amendment filed January, 26, 2010 has been entered. Claims 1-12 remain pending in the Application. The previous objections to claims 13-17 have been withdrawn in light of Applicant's cancellation of claims 13-17.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,248,057 to Yaguchi, hereinafter referred to as Yaguchi, in view of US 2,793,510 to Komroff, hereinafter referred to as Komroff, and in further view of US 3,079,767 to Speaker, hereinafter referred to as Speaker.

In reference to claim 1, Yaguchi, Komroff and Speaker disclose the claimed invention:

Yaguchi teaches a window type air conditioner, see figure 1, comprising:

a case (11) one side of which one side is positioned on an indoor side and another side of which is positioned on an outdoor side, see column 3 lines 27-45;

an outdoor heat exchanger (34) mounted inside the case positioned on the outdoor side that heat-exchanges with outdoor air;

an axial fan (32) provided opposite to the outdoor heat exchanger (34) that blows the outdoor air by a centrifugal force;

a condensate dispersing device (31) that disperses condensate collected at a lower portion of the case in a radial direction of the axial fan, see figure 1; and

Yaguchi fails to teach a shroud in which the outdoor heat exchanger is mounted, wherein the shroud includes a condensate guide that collects and guides condensate dispersed in the radial direction of the axial fan to an inner surface of the shroud by the condensate dispersing device to the outdoor heat exchanger.

Komroff teaches a shroud (20) in which an outdoor heat exchanger (15) is mounted, see figures 1-5, wherein the shroud includes a condensate guide (43) that collects and guides condensate dispersed to an inner surface of the shroud (20) by a condensate dispersing device (35) to the outdoor heat exchanger (15). Komroff further teaches that the disclosed condensate guides aid in producing a uniform distribution of condensate on the condenser, especially when the fan is not located centrally with respect to the condenser, see column 1 lines 20-30. Considering the teaching of Komroff and the fact that the fan of Yaguchi is not

located centrally with respect to the condenser, see figure 2, one having ordinary skill would be interested in modifying Yaguchi to produce a uniform distribution of condensate on the outdoor heat exchanger (34) as taught by Komroff. One skilled in the art would understand that a uniform distribution would yield the predictable result of a more efficient condenser for cooling the refrigerant distributed within. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made, to modify the cooling apparatus of Yaguchi to include the shroud and condensate guides as taught by Komroff, in order to provide a uniform distribution of condensate to the condenser as taught by Komroff.

Yaguchi further fails to teach wherein the condensate guide includes a plurality of guide grooves formed on both lateral inner surfaces of the shroud.

Speaker teaches a window type air conditioner with means for distributing condensate to the coils of a heat exchanger (35), see figure 8. Speaker further teaches using baffles (38) along the lateral surface of the heat exchanger to direct water along the heat exchanger, see column 7 lines 1-5. Since one skilled in the art would understand the importance of a uniform distribution of condensate on the condenser of Yaguchi because of the explicit teachings of Komroff column 1 lines 20-30 and since one skilled in the art would understand that the baffles of Speaker would catch, collect, and distribute condensate in a uniform fashion when configured as illustrated in Speaker figure 8, one skilled in the art would be motivated to provide condensate collection and distribution

means along the lateral surface of the outdoor heat exchanger. Further, since Komroff teaches that it is known to provide baffles or condensate guides on a shroud of an outdoor heat exchanger, one skilled in the art would know a technique of providing baffles in a heat exchanger shroud. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to provide the shroud of Yaguchi as modified by Komroff above, with guide grooves formed on both lateral inner surfaces of the shroud with the same interval therebetween in order to catch, collect, and distribute condensate in a uniform manner as taught by Speaker and advantageously direct condensate on the condenser and provide for a more efficient condenser.

In reference to claim 2, Yaguchi, Komroff and Speaker disclose the claimed invention:

wherein the condensate dispersing device (31) is in the shape of a ring, see figure 3, that is installed on the axial fan (32) and is rotated with the axial fan.

In reference to claim 4, Yaguchi, Komroff and Speaker disclose the claimed invention:

wherein the plurality of guide grooves is downwardly inclined towards the outdoor heat exchanger, see Komroff column 3 line 71 through column 4 line 3 where Komroff teaches that the intermediate portion (41) upon which the guide grooves (45) are installed is inclined downwardly, and see also Speaker where the baffles (38) are inclined downwardly towards the heat exchanger. Therefore, when modifying the guide grooves of Komroff as taught by Speaker, it would have been obvious to one having ordinary skill in the art at the time of the invention, to have the guide grooves downwardly inclined towards the outdoor

heat exchanger in order to have the condensate flow uniformly across the condenser by the effects of gravity alone.

In reference to claim 5, Yaguchi, Komroff and Speaker disclose the claimed invention:

Speaker teaches that the baffles (38) are in contact with a surface of the heat exchanger, see column 7 lines 1-5. Therefore, when modifying the guide grooves of Komroff as taught by Speaker above, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to have the guide grooves contact a surface of the condenser in order to ensure that the condensate is distributed upon the condenser at an exact location to and ensure uniform distribution of the condensate over the condenser.

In reference to claim 6, Yaguchi, Komroff and Speaker disclose the claimed invention:

Yaguchi, Komroff and Speaker fail to disclose wherein the plurality of guide grooves is formed in a curved line shape on both lateral surfaces of the shroud between the axial fan and the outdoor heat exchanger.

Since the curved shape of the guide groove involves a mere change in the shape of the component which is generally recognized as being within the level of ordinary skill in the art, it would have been an obvious matter of design choice to one having ordinary skill in the art to have the guide grooves formed as a curved line shape at both lateral surfaces of the shroud between the axial fan and the outdoor heat exchanger in order to allow condensate to slide off the groove guides and gain the momentum necessary to break the surface tension

between condensation drops and the guide groove and allow proper flow to the desired location due to the effect of gravity.

In reference to claim 7, Yaguchi, Komroff and Speaker disclose the claimed invention:

Yaguchi and Komroff teach wherein the condensate guide, (43) as modified by Komroff, includes a plurality of guide protrusions that protrude, see figure 2, with the same interval therebetween.

Komroff fails to teach wherein the guide protrusions protrude from both lateral surfaces of the shroud in a vertical direction.

Speaker teaches a window type air conditioner with means for distributing condensate to the coils of a heat exchanger (35), see figure 8. Speaker further teaches using baffles (38) along the lateral surface of the heat exchanger to direct the condensate along the heat exchanger in a desired manner, see column 7 lines 1-5. Since one skilled in the art would understand the importance of a uniform distribution of condensate on the condenser because of the explicit teachings of Komroff column 1 lines 20-30 and since one skilled in the art would understand that the baffles of Speaker would catch, collect, and distribute condensate in a uniform fashion when configured as illustrated in Speaker figure 8, one skilled in the art would be motivated to provide condensate collection and distribution means along the lateral surface of the outdoor heat exchanger. Further, since Komroff teaches that it is known to provide baffles or condensate guides on a shroud of an outdoor heat exchanger, one skilled in the art would know a technique of providing baffles in a heat exchanger shroud. One skilled in

the art would also understand that by providing the baffles in the shroud would be easier to manufacture than providing baffles on the heat exchanger as taught by Speaker. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to provide the shroud of Yaguchi as modified by Komroff above, with protrusions formed on both lateral inner surfaces of the shroud with the same interval therebetween in order to catch, collect, and distribute condensate in a uniform manner as taught by Speaker and advantageously provide for a more efficient condenser.

In reference to claim 8, Yaguchi, Komroff and Speaker disclose the claimed invention:

Yaguchi and Komroff teach wherein the plurality of guide protrusions is downwardly inclined towards the outdoor heat exchanger, see Komroff figure 2 and Speaker figure 8 where the baffles (38) are inclined downwardly towards the heat exchanger. Therefore, when modifying the protrusions of Yaguchi and Komroff as taught by Speaker, it would have been obvious to one having ordinary skill in the art at the time of the invention, to have the guide protrusions downwardly inclined towards that outdoor heat exchanger in order to have the condensate flow uniformly across the condenser by the effects of gravity alone.

Yaguchi and Komroff fail to teach the end portions of the guide protrusions are in contact with a surface of the outdoor heat exchanger.

Speaker teaches that the baffles (38) are in contact with a surface of the heat exchanger, see column 7 lines 1-5. Therefore, when modifying the guide protrusions of Yaguchi and Komroff as taught by Speaker above, it would have

been obvious to one having ordinary skill in the art at the time the invention was made, to have the guide protrusions contact a surface of the condenser in order to ensure that the condensate is distributed upon the condenser at an exact location and ensure uniform distribution of the condensate over the condenser.

In reference to claim 9, Yaguchi, Komroff, and Speaker disclose the claimed invention:

wherein the condensate guide, Komroff (43) includes a plurality of guide grooves formed on an upper inner surface of the shroud (20) as modified by Komroff.

In reference to claim 10, Yaguchi, Komroff, And Speaker disclose the claimed invention:

Yaguchi and Komroff teach wherein the plurality of guide grooves, as modified by Komroff (43) formed extending in a substantially horizontal direction is formed with the same interval therebetween but fail to teach the plurality of guide grooves in a curved line shape.

Since the curved shape of the guide groove involves a mere change in the shape of the component which is generally recognized as being within the level of ordinary skill in the art and it appears that the condensate guide grooves would work equally well if the guide grooves were formed in any shape that directs condensate from the fan to the heat exchanger surface, it would have been an obvious matter of design choice to one having ordinary skill in the art to have the guide grooves formed as a curved line shape extending in a substantially horizontal direction in order to allow condensate to slide off the groove guides and gain the momentum necessary to break the surface tension between

condensation drops and the guide groove and allow proper condensation flow to the desired location of the outdoor heat exchanger.

In reference to claim 11, Yaguchi, Komroff and Speaker disclose the claimed invention:

Komroff teaches wherein the condensate guide, Komroff (43) includes an inclination (41) surface formed at an upper inner surface of the shroud (20) so as to guide condensate dispersed into an upper inner surface of the shroud to the outdoor heat exchanger (15), see Komroff column 3 line 71 through column 4 line 19. Since all claimed elements were known in the art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions and the combination would have yielded the predictable result of allowing the condensate to drain toward the heat exchanger due to gravity alone, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include an inclination surface formed at an upper inner surface of the shroud in order to provide the predictable result of allowing the condensate to drain toward the heat exchanger due to gravity alone, see Komroff column 4 lines 1-10.

In reference to claim 12, Yaguchi, Komroff and Speaker disclose the claimed invention:

wherein the inclination surface (41) includes a plurality of guide grooves (43) with the same interval therebetween, see Komroff figure 5.

Response to Arguments

3. In response to Applicant's arguments beginning on page 8 of the response that *the baffles (38) of Speaker do not guide the unevaporated water to the evaporative cooling unit of (35) since the baffle are provided on the evaporative unit*, has been considered but is not persuasive. Applicant should note that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Speaker provides the teaching necessary for one skilled in the art, that it is known to provide baffles along the lateral sides of a heat exchanger. Further, one skilled in the art would recognize that the baffles (38) of Speaker could be applied to any heat exchanger where one wished to guide water along the surfaces thereof. The examiner asserts that since Yaguchi, Komroff, and Speaker are all concerned with the distribution of water along the surfaces of a heat exchanger, one skilled in the art would be motivated to pick and choose features from each of the prior art when water distribution along the surfaces of a heat exchanger is a priority. The examiner maintains that one skilled in the art would know from the teachings of Speaker to provided baffles or guides along lateral sides of a heat exchanger to guide water along the lateral surfaces of the heat exchanger. The examiner maintains that one skilled in the art would know from the teachings of Komroff to provide baffles along the inner surfaces of a shroud of a condensing heat exchanger to provide uniform distribution of condensate on a condenser. Thus, when modifying Yaguchi with the shroud of Komroff, and then

modifying the shroud of Komroff with the lateral baffles of Speakers, the modified air conditioner of Yaguchi will meet Applicant's claimed invention. Therefore the rejection of claim 1 is proper and remains.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cassey Bauer whose telephone number is (571)270-7113. The examiner can normally be reached on Monday -Friday: 7-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules can be reached on (571)272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cassey Bauer/
Examiner, Art Unit 3744

/Frantz F. Jules/
Supervisory Patent Examiner, Art Unit 3744

